



Joshua Lederberg

Curbs on Human Engineering Can Create Thought Control

I BELIEVE that Dr. Marshall W. Nirenberg is unduly conservative in predicting that it will take 25 years to lay the scientific foundations of genetic engineering; many of them are already with us. For just that reason, it is important that we identify the terrors in store for us and that we keep a balanced perspective about how much human engineering we already practice.

Few scientific innovations will have any deeper impact on human personality than the psychological engineering we already impose upon each generation of children. But this consists of patterns of child-rearing and schooling, about which we have more optimistic intentions than scientific insights. Any attempt to rationalize human development might be terrifying if we contemplated how it might be abused.

THERE ARE ample precedents for at least two rueful avenues by which a biotechnical innovation might be threatening. One is its adoption and widespread application by government authority.

This might merely reinforce an already authoritarian regime, like Hitler's practice of genocide on flimsy pseudo-scientific pretenses. Even a democratic society, however, may be entrapped by its short-term goals into a commitment, as we have made to nuclear weaponry and may be doing to biological weaponry.

Second, a glittering innovation may entice scattered individuals into collectively disastrous behavior, like

urban congestion and air pollution resulting from the cumulative use of cheap and convenient fuels.

The abuse by government of insight into human biology is probably the most tangible of rational fears. In a report on "The United Nations and Human Rights," the Commission to Study the Organization of Peace, headed by Prof. Louis B. Sohn of Harvard Law School, writes that new biochemical studies may "soon lead to the temptation of trying to manipulate the relevant factors in such a way as to change the future of the human race in accordance with the preconceptions of those who are in control of the means of effecting the changes." Every educator, publicist or politician is of course equally dedicated to the same end.

A PLURALISTIC society must make the same response to the calculated use of human biochemistry against the overcentralization of power. On the same argument that we now universally accept for leaving the responsibility for the details of child-rearing and education in the hands of the family, I would advocate the utmost permissiveness with respect to individual use of biological innovations.

Effective sanctions on the

part of the state to enforce Dr. Nirenberg's cautions would generate a police and thought-control bureaucracy exactly contrary to his fundamental humanistic aims. We have already experienced the sad consequences of the confusion of law with private morals in such areas as contraception and abortion and have only begun to extricate ourselves from their attendant hypocrisy and class discrimination.

SOCIAL ORDER must, of course, place some limits on individual discretion. We do not, for example, allow a parent to leave a child utterly without education, partly because of the economic stress on the community, partly because of the way this alienates the child from his culture to what we regard as the child's disadvantage.

It is doubtful, however, whether we will ever know which knowledge is for the benefit of mankind. Was the invention of printing, autos, airplanes, radio, TV, nuclear energy? If we make the most energetic, immediately beneficial use of molecular biology in medicine, as I believe we should, we must also vigilantly pursue the further research and education needed for the utmost harmony of social and technological development.